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Abstract

PURPOSE: To apply atomic-layer epitaxy with a self-limiting characteristic by forming one layer of the adduct of the alkyl compds. of the group III element and group V element constituting the semiconductor on a semiconductor substrate and then bringing the surface of the adduct layer with a reducing gas at a higher temp.

CONSTITUTION: One semiconductor layer 4 (substrate) arranged in a crystal growth device (reaction tube 1) is brought into contact with the adduct 8 of the alkyl compds. of the group III element and group V element constituting the one semiconductor to deposit one layer of the adduct 8 on the layer 4. The layer 4 deposited with the adduct 8 layer is brought into contact with a reducing gas (e.g. H₂) at a temp. higher than the contact temp. of the adduct 8 to grow a single crystal layer 9 of the compd. semiconductor of the group III element and group V element. (CH₃)₃In.P(CH₃)₃ is exemplified as the organometallic adduct compd.